

Claims

1. A vacuum producing device comprising a principal suction nozzle unit (2) able to be supplied by way of principal inflow duct (16) with a pressure medium subject to a predetermined operating pressure, said pressure medium causing a suction effect, on flowing through the principal suction nozzle unit (2), in a principal suction duct (22) adjoining a principal suction opening (7), said principal suction duct being connected or being able to be connected with a space (24) to be evacuated, a shut-off valve (27) being provided on the principal supply duct (16), said valve being able to be actuated in accordance with the negative pressure obtaining instantaneously in the space (24) to be evacuated, said valve being adapted to cause an interruption of the pressure medium supply for the principal suction nozzle unit (2) on a predetermined target negative pressure being reached, characterized by an additional suction nozzle unit (3), connected in parallel functionally with the principal suction nozzle unit (2), such additional unit being constantly supplied during operation of the device with pressure medium subject to an operating pressure and such additional unit possessing an additional suction opening (8) connected fluidwise with the principal suction duct (22) of the principal suction nozzle unit (2), a check valve (39) being provided between the two suction openings (7 and 8) on the principal suction duct (22) and being adapted to close

oppositely to the direction (38) of suction able to be caused by the principal suction nozzle unit (2).

2. The vacuum producing device as set forth in claim 1, characterized in that the additional suction nozzle unit (3) is designed for a maximum pressure medium flow rate less than that of the principal suction nozzle unit (2), of the supplied pressure medium.

3. The vacuum producing device as set forth in claim 1 or in claim 2, characterized in that the additional suction nozzle unit (3) is so designed that the suction flow rate able to be produced by it is of the same order as the leak rate in the case of the space (24) to be evacuated.

4. The vacuum producing device as set forth in any one of the claims 1 through 3, characterized in that the shut off valve (27) is in the form of a 2/2 way valve.

5. The vacuum producing device as set forth in any one of the claims 1 through 4, characterized in that for operation of the shut off valve (27) the negative pressure obtaining in the space (24) to be evacuated is switched constantly to an actuating area (32) constantly functionally connected with the valve member (36) of the shut off valve (27), oppositely acting actuating means (34) being provided, which as regards the valve member (36) cause an oppositely acting force (F_G) in a direction opposite to the actuating force F_B caused by switched negative pressure.

6. The vacuum producing device as set forth in claim 5, characterized in that the oppositely acting actuating means include a spring means (37) causing the oppositely

acting actuating force (F_G), such spring means preferably being adjustable.

7. The vacuum producing device as set forth in claim 5, characterized in that the oppositely actuating means (34) include an oppositely acting actuating area (35) functionally connected with the valve member (36) of the shut off valve (27), such area constantly having the operating pressure switched to it, which is present at the principal inflow duct (16).

8. The vacuum producing device as set forth in claim 7, characterized in that the ration between the actuating area (32) and the oppositely acting actuating area (35) is so selected that the vacuum able to be produced inside the space (24) to be evacuated is proportional to the operating pressure applied at the principal inflow duct (16).

9. The vacuum producing device as set forth in any one of the claims 5 through 8, characterized in that the actuating area (32) is constituted by a moving wall section of the principal inflow duct (16) and preferably is provided on an end face of the valve member (36).

10. The vacuum producing device as set forth in any one of the claims 1 through 9, characterized in that all suction nozzle units (2 and 3) are supplied in operation of the device with a pressure medium subject to the same pressure.

11. The vacuum producing device as set forth in any one of claims 1 through 10, characterized in that several parallel connected principal suction nozzle units (2 and 48) are provided.

12. The vacuum producing device as set forth in any one of claims 1 through 11, characterized by a shut off valve (27) having a steady setting behavior.